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[0001] The present invention relates to a fluid distributor of product including/understanding a tank in the shape of an hollow body containing a following piston, and a mounted pump on the hollow body to extract from the fluid product. It is there about a distributor without resumption of air since the volume of product extracted by the pump is not replaced by air but on the contrary the following piston slides inside the hollow body as fluid product is extracted from it. This type of distributor is frequently used in the field of cosmetic and perfumery to distribute liquid products to pasty.

[0002] The present invention tie particularly with the mounting of such a distributor of fluid product while seeking to carry out a distributor whose mounting is particularly simple. Indeed, manufacturing it such distributors is only very seldom the filler of the distributor. In general, the distributor with the dismounted state is delivered to the person in charge of the conditioning of the product in the distributor. In order to to the minimum reduce the tooling required to the filling and the mounting of such distributors, it is particularly advantageous particularly for the conditioner of the product to have a distributor whose mounting is particularly simple, which reduced not only tooling required but also the time of mounting. This of course involves a reduction in the cost price of the packaged fluid product.

[0003] It is known former art of the distributors of this type in which the pump is mounted on the collar of the hollow body using a fastener which makes it possible to retain, to screw or crimp on the collar of the hollow body. In the retained systems, the fastener generally includes/understands legs of click-and-ratchet work intended to come into taken in lower part from the collar from the hollow body and a hoop of blocking comes to cover the legs with click-and-ratchet work to block them in lower part of the collar of the hollow body. To carry out this operation of click-and-ratchet work, it is required to use at least two mounting machines, one to set up the fastener including/understanding the legs, and another to come to lower the hoop of blocking on the legs. In the screwed version, it is required to use a machine making it possible to seize and rotate the fastener to screw the fastener on the threaded collar of the hollow body. Lastly, in the crimped option, it is required to use a machine of setting.

[0004] The purpose of the present invention is solving the aforementioned problems of the former art by defining a distributor which can be prefabricated in the shape of two subsets that the conditioner of the product has to only assemble to finish the mounting of the distributor. In other words, the person in charge of the conditioning of the product in the distributor has only to fill the hollow body with product and to finish the mounting of the distributor in only one step requiring only one primary tooling. The distributor is then in its ready finished state with the sale.

[0005] For this making, the present invention has as an object a distributor comprising an hollow body in which is mounted a following piston, a pump and an element of holding attached to that the body, the aforementioned element of holding defining an opening located of adjacent manner at the open end of the body, the aforementioned element of holding including/understanding an outer cover and an annular sleeve defining the aforementioned opening, the aforementioned outer

cover and the aforementioned annular sleeve being connected by their upper ends, the aforementioned outer cover and the aforementioned annular sleeve being laid out of substantially concentric manner, the aforementioned outer cover having a low portion defining a shoulder receiving the low end of a protective cap, the aforementioned element of holding defining a flange extending radially towards the inner one, the aforementioned pump defining a flange extending radially towards the outer one and at least a rib extending radially towards the outer one, located above of the aforesaid the flange of pump to define a housing between the aforementioned flange of pump and the aforementioned rib of pump to receive the aforementioned flange of the element of holding, and at least one among the aforementioned pump and the aforementioned element of holding being realized of resilient manner to allow a relative displacement of the aforesaid the rib of pump beyond the aforementioned flange of element of holding, so as to receive by click-and-ratchet work the aforementioned flange of the element of holding in the aforementioned housing between the aforementioned flange of pump and the rib. Thus, the element of holding fulfills a triple function, namely that of holding of the pump, that of fixing about the collar of the hollow body, and that of reception for a protective cap. The element of holding, the pump and the protective cap constitute a mounted subset thus that the conditioner of the product has to only retain on the hollow body once filled to finish the mounting of the distributor. The tooling required consists in only of one adapt press applying a force of pushed to the protective cap. The distributor is thus delivered to the conditioner by appearing as two subsets, one consisted the element of holding, the pump and the cap, and the other one by the hollow body.

[0006] For the fixing of the element of holding on the collar of the hollow body, the element of holding defines a cord extending radially towards the inner one, the aforementioned body defining an open groove radially towards the inner one to receive the aforementioned cord, at least one among the aforementioned body and the aforementioned element of holding being realized of resilient manner to allow a relative displacement of the aforesaid cord in the aforementioned groove to come into taken retained.

[0007] In addition, for the fixing of the protective cap on the element of holding, the outer cover includes/understands a projection which extends on at least a portion of the periphery of the cover near the shoulder to cooperate by click-and-ratchet work with obviously peripheral inner formed in the protective cap.

[0008] The present invention also has as an object a process of mounting according to claim 10.

▲ top [0009] Other features of the present invention will arise precisely from the detailed description which will follow which is made in reference to the joined drawings, giving as nonrestrictive example an embodiment of the invention.

[0010] On the drawings:

figure 1 is a schematic sight in prospect for a fluid distributor of product according to the invention with the mounted state,
figure 2 is a schematic sight burst in transverse section through the upper portion of the distributor of figure 1,
figure 3 is a sight in transverse section of the upper portion of the fluid distributor of product according to the invention, and
figure 4 is a sight in transverse section increased through the low portion of the distributor according to the invention.

[0011] The fluid distributor of product according to the invention is indicated in its whole by the digital reference 10 on figure 1. Distributor 10 is adapt to distribute a product fluid, typically liquid, a cream, a paste or similar.

[0012] Distributor 10 includes/understands substantially three constituting parts, namely an hollow body 24, a pump 14 and one element of holding 130.

[0013] The inner structure of the pump 14 is not critical for the present invention and will consequently not be described. The pump includes/understands however a body 141 at the end of which a stem of actuating 148 emerges that one can axially move in body 141 while supporting on

his end. The pump 14 includes/understands an adapt push rod 16 also to come to cap the upper end of the stem of actuating 148 and communicating with the outer one via an outlet port 18. The actuating of the pump 14 is more conventional, namely by pressure about push rod 16 to insert the stem of actuating 148 and to thus drive back an amount of fluid product through it until the level of outlet port 18 of push rod 16. For the holding of the pump 14, its body 141 is formed with a radial flange 140 which extends towards the outer one. In addition, body 141 is also provided of at least a rib 142 which extends also radially towards the outer one. Or preferably the ribs distributed on the periphery of body 141, are laid out just above flange 140 for thus defining a housing 144 which is used for fixing of the pump in the element of holding as it hereafter will be seen.

[0014] The hollow body 24 present preferably in the shape of a tube of round transverse section for reasons of simplicity, being given that the following piston 29 must slide inside sealed manner. The hollow body 24 is closed at its low end by a bottom 26 carried out with openings 28 to leave the following piston to the atmospheric pressure. At its upper end, the hollow body 24 defines a collar 32 of reduced diameter. The upper end of the collar defines an outer peripheral shoulder 34. The outer wall of the collar defines an open annular groove towards outer the 36. The distal end of collar 36 defines an annular edge 35 which makes covered to the top with the level of the low diameter of shoulder 34. In the embodiment in which the hollow body is molded by thermoplastic material injection, two cavities 37 in shoulder 34 constitute the points of injection.

[0015] Moreover, in a preferred form of the invention, collar 32 comprises a slit or notches vertical outer 38 and one vertical inner rib 40. The slit or notches outer 38 can be used to position the hollow body 24, according to a desired orientation in rotation compared to the pendent vertical longitudinal axis the process of impression during which a text and/or a drawing are applied on the body 24 by appropriate conventional means.

[0016] The hollow body 24, including/understanding the following piston and the bottom, constitutes a subset or first subset. In certain cases, bottom 26 can be omitted. At all events, once the following piston introduced into the hollow body, one has a subset which it is enough to fill with fluid product by collar 32.

[0017] The second subset or upper subset includes/understands the pump 14 described above as well as the element of holding 130, and optionnellement a protective cover 20 which comes to cap the pump and the element of holding.

[0018] The element of holding 130 includes/understands a peripheral convex cover 160 equipped with a pleasant outer aspect. The low end of cover 160 is defined by a flange or shoulder 162 which makes covered radially towards the outer one. In four points around cover 160 above flange 162, there are small outer projections 166 (. 2 and 3). Each projection 166 is adapt to establish a click-and-ratchet work in one obviously or an inner peripheral groove 168 envisaged at the low end of protective cap 20 as one can see it on figure 3. To allow the click-and-ratchet work, cap 20 and/or the low portion of cover 160 are carried out of resilient manner so as to allow the relative movement between cap 20 and cover 160 when cap 20 is installed on the distributor. Cap 20 and/or cover 160 become deformed sufficiently so that obviously the 21 of cap 20 can come to be placed on projections 166 of cover 160 to carry out a connection by click-and-ratchet work.

[0019] The cover 160 which present here an aesthetic ogival form is connected by its upper end to an annular sleeve 190 (. 2 and 3). Sleeve 190 defines a boring, passage or opening 192 intended to receive the annular collar 32 of the body 24 and the portion of the pump 14 which makes covered to the top (. 3).

[0020] A flange 196 extends radially towards the inner one starting from annular sleeve 190 to come into taken with upper surface from flange 140 from the pump (. 3). Sleeve 190 also includes/understands a cord 202 which extends towards the inner one to be received in the annular groove 36 defined in collar 32 of the body 24. The pump is thus maintained in sleeve 190 of the element of holding 130 by engagement of the flange of the sleeve in housing 144 of the defined pump between the outer flange 140 and ribs 142. To facilitate the introduction of the inner flange 196 into housing 144, ribs 142 are formed with an upper surface of cam 146 on which low inner flange 196 stops can slip to engage in housing 144. During the introduction of flange 196 into housing

144, of the opposite axial forces are applied with the element of holding 130 and the pump 14, and there is a temporary deformation of two elements in the radial direction so that ribs 142 can pass beyond flange 196. A relative displacement is thus carried out to position ribs 142 on the upper side of flange 196 so that the low side of flange 196 is in contact with the upper surface of flange 140 of the pump. Either the element of holding 130, or the pump 14 or both, is carried out of resilient manner, less in the area of flange 196 and/or ribs 142 so as to allow the passage of the ribs beyond flange 196 so as to produce a click-and-ratchet work.

[0021] Once the pump 14 thus mounted in the element of holding 130, push button 16 can be installed on the stem of actuating 148 as well as protective cap 20 per click-and-ratchet work on cover 160 of the element of holding 130. If a joint 132 is used, it can be engaged on body 141 of the pump 14 where it is maintained of itself by friction. The unit consisted the element of holding 130, the pump 14 with its push rod 16, and optionnellement protective cap 20 and joint 132 form a second subset or upper subset intended to be mounted on the low subset made up of the hollow body 14 and the following piston 29.

[0022] For the fixing of the element of holding 130 on collar 32 of the hollow body 24, sleeve 190 internally forms a peripheral cord 20 adapt to come to retain itself in formed groove 36 in collar 32 of the hollow body 24. To be done, either the element of holding, or the hollow body 24 or both, is carried out of resilient manner at least in the area of cord 202 and/or groove 36 of collar 32. A click-and-ratchet work can be thus to be carried out.

[0023] The two subsets thus carried out can be simply assembled by retaining the upper subset the low subset so as to engage cord 202 in groove 36 of collar 32.

[0024] The operations of mounting of the two subsets can be carried out at manufacturing parts constituting of the distributor whereas the assembly of the two subsets is carried out at the conditioner after filling of the hollow body 24. For this making, the conditioner has need only for only one machine making it possible to exert a pressure on the element of holding 130 or the protective cap if there is one of them.